

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

Dyna-Glo® Delux Natural Gas Construction Heater

Description

Dyna-Glo Delux model RMC-FA150NGDGD is a natural gas fired construction heater, having a built-in thermostat, and a 150,000 BTU/Hr rating. The heater uses natural gas for combustion and electricity to operate the motor and fan. It is primarily to be used to temporarily heat well-ventilated buildings under construction, alteration or repair. This heater should be utilized in sheltered, well-ventilated areas, but never in occupied dwellings.



Figure 1 – Model RMC-FA150NGDGD

Specifications

ANS Z83.7-2011 CSA 2.14-2011 Construction Heater

Model	Output Rating BTU/Hr	Fuel	Fuel Consumption	Hot Air Output (CFM Approx)	Motor	Electric Motor Input	Amperage
RMC-FA150NGDGD	150,000	Natural Gas Only	146 Cubic Ft/Hr	435	3440 RPM	120V/60Hz, 1/9 HP	0.7
Model	Manifold Pressure	Maximum Supply Pressure to Heater	Minimum Supply Pressure to Heater	Temperature Control			
RMC-FA150NGDGD	4" W.C.	1/2 PSI	5" W.C.	Built-In Thermostat			
Model	Ignition	Spark Plug Gap (Inches)	Ignitor Gap (Inches)	Weight (Pounds)	Size L x W x H (Inches)		
RMC-FA150NGDGD	Continuous spark	.12	.12	18.6 (Heater) 22 (Shipping)	25 x 9.4 x 15.5		

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Unpacking

1. Unpack all materials used to protect the heater inside of carton. Retain plastic caps attached to exposed

2. Remove heater, accessories and all hardware from carton.
3. Inspect all items for damage that may have occurred during shipment.

tially hazardous situation which, if not avoided, COULD result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.

IMPORTANT: Not every possible circumstance that might involve a hazard can be anticipated. The warnings in this manual and on tags or decals affixed to the unit are therefore not all-inclusive. If a procedure, work method, or operating technique not specifically recommended by is used, you must make sure it is safe for you and others.

You should also ensure that equipment will not be damaged or made unsafe by the operating or maintenance method you choose.

Consumer: Retain this manual for future reference.

DANGER Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.

WARNING Indicates a poten-

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General Safety Information (Continued)

WARNING General Hazard Warning: Failure to comply with the precautions and instructions provided with this heater can result in death, serious bodily injury, and property loss, or damage from hazards of fire, explosion, burn, asphyxiation, carbon monoxide poisoning, and/or electrical shock. Only persons who can understand and follow these instructions should use or service this heater.

WARNING Fire, burn, inhalation, and explosion hazard. Keep solid combustibles such as building materials, paper, or cardboard, at a safe distance away from heater as recommended by the instructions. Never use the heater in spaces which do or may contain volatile or airborne combustibles or products such as gasoline, solvents, paint thinner, dust particles, or unknown chemicals.

WARNING Not for home or recreational vehicle use.

This heater has been designed as a construction heater in accordance with ANSI Z83.7 CSA 2.14. Other standards govern the use of fuel gases and heating products for specific uses. Your local authority can inform you of these. The primary purpose of these construction heaters are to provide temporary heating of building under construction, alteration, or repair. When properly used, the heater provides safe economical heating. Products of combustion are vented into the heated area.

- For either indoor or outdoor use. Adequate ventilation must be provided.

California Proposition 65 Warning: Fuels used in gas or oil fired appliances and the products of combustion of such fuels, contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. This product contains chemicals, including lead and lead compounds, known to the state of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

DANGER Carbon monoxide poisoning may lead to death! Some people are more affected by carbon monoxide than others. Early signs of carbon monoxide poisoning resemble the flu, with headaches, dizziness, and/or nausea. If you have these signs, the heater may not be operating properly, or the areas may not be sufficiently ventilated. Get fresh air at once! Have heater serviced.

Natural Gas: Natural gas has a distinctive odor. This odor helps you detect a natural gas leak. However, the odor may fade. Natural gas may be present even though no odor exists.

WARNING Install and use heater with care. Follow all local ordinances and codes. In the absence of local ordinances and codes, refer to the National Fuel Gas Code handbook NFPA54/ANSI Z223.1 and the Natural Gas Installation Code, CAN/CGA B149.1. This instructs on the safe storage and handling of flammable gases.

- Use only the electrical voltage and frequency specified on model plate. The electrical connections and grounding of the heater shall follow the National Electric Code, ANSI/NFPA 70 or the Canadian Electrical Code, Part 1.
- Electrical grounding instructions - This appliance is equipped with a

NEVER LEAVE THE HEATER UNATTENDED WHILE BURNING!

three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle or extension cord.

- Use only natural gas. Do not attempt to operate on LP gas.
- Provide adequate ventilation. Before using heater, provide at least a three-square-foot opening of fresh, outside air for each 100,000 Btu/Hr of rating.
- Do not use heater in occupied dwellings or in living or sleeping quarters.
- Keep appliance area clear and free from combustible materials, gasoline, paint thinner, and other flammable vapors and liquids. Dust is combustible. Do not use heater in areas with high dust content.

Minimum heater clearances from combustibles:

Outlet: 6 Ft	Sides: 2 Ft.
Top: 3 Ft.	Rear: 2 Ft.

- Check heater for damage before each use. Do not use a damaged heater.
- Check hose (if used) before each use of heater. If highly worn or cut, replace with hose specified by manufacturer before using heater.
- Locate heater on stable and level surface if heater is hot or operating.
- Never block air inlet (rear) or air outlet (front) of heater.
- Never operate heater while unattended.
- Keep heater away from strong drafts, wind, water spray, rain, or dripping water.
- Keep children and animals away from heater.

Model RMC-FA150NGDGD

NEVER LEAVE THE HEATER UNATTENDED WHILE BURNING!

General Safety Information (Continued)

- This heater is equipped with a thermostat. Heater may start at anytime.
- Never move, handle, or service a hot, or operating heater. Severe burns may result. You must wait 15 minutes after turning heater off.
- To prevent injury, wear gloves when handling heater.
- Never attach ductwork to heater.
- Do not alter heater. Keep heater in its original state.
- Do not use heater if altered.
- Turn off natural gas supply to heater and unplug when not in use.
- This heater is not to be used with external thermostats, timers or other devices that control or alter electrical supply to the heater.

Principals of Operation

FUEL SYSTEM

The pipe runs from the gas supply to the heater itself. After the gas runs through the pipe, it passes through the solenoid valve and out the nozzle into the combustion chamber.

AIR SYSTEM

The internal motor turns the fan, which pushes air around and through the combustion chamber. Here the air is heated and provides a constant stream of warmth.

IGNITION SYSTEM

The spark module sends voltage to the ignitor. The ignitor ignites the fuel and air mixture.

SAFETY CONTROL SYSTEM

This system shuts the heater down if the flame is extinguished. The fan and motor will continue to operate, but there will not be any heat.

TEMPERATURE CONTROL SYSTEM

A built-in thermostat allows the heater to turn on and off to maintain a consistent temperature.

THE NATURAL GAS SUPPLY

The user of this heater must provide the natural gas supply and all fittings to properly install the heater.

The natural gas supply should be able to provide a minimum of 150 cubic feet of gas per hour for each heater being used. Consult with your natural gas supplier for the proper sizing of all gas lines. You must regulate the natural gas supply down from a minimum of 5 inches of water column to a maximum of 1/2 PSI.

Be sure to research and follow all local ordinances and codes. In the absence of local codes, follow the National Fuel Gas Code Handbook NFPA54/ANSI Z223.1 and the Natural Gas Installation Code, CAN/CGA B149.1.

Ventilation

WARNING A three square foot opening of fresh outside air must be provided to operate each heater safely. If the proper air ventilation is not provided, carbon monoxide poisoning can occur. Always be sure that the proper ventilation is being provided before starting this heater.

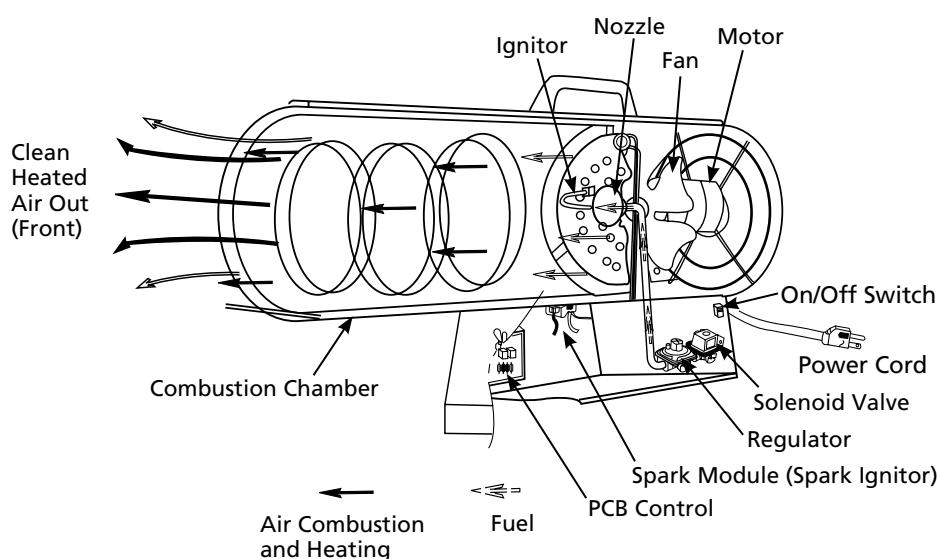


Figure 2 – Cross Section Operational View

For Technical Support or Troubleshooting, Call: 1-877-447-4768, 8:30 am - 4:30 pm CST

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Installation

WARNING Review and understand all of the warnings in the Safety Information Section on pages 1–3. They are required to operate this heater safely. Follow all local and state codes when operating this heater.

WARNING Be sure to test all connections for leaks after installation or service. Never use an open flame to check for leaks. Apply a 50/50 mixture of dish soap and water to each connection. If bubbles appear, there is a leak. Correct all leaks immediately.

1. Provide the natural gas supply system (See Natural Gas Supply, on page 3).
2. Connect all plumbing and fittings to the low-pressure Natural Gas source. This source must be regulated to a maximum of 1/2 PSI, and the piping must be a 3/4 inside diameter minimum, and not be over 10 feet in length.
3. Line up the female threaded end of the hose with the fitting on the heater base and tighten.
4. Slowly open valve at natural gas supply.
5. Check for leaks at all connections.

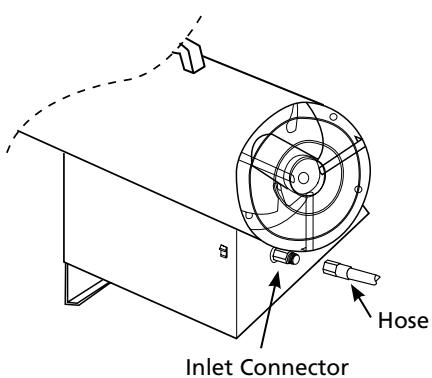


Figure 3 – Hose and Inlet Connector

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4. Following the extension cord requirements, plug the extension cord into a 120 volt/60 Hertz, three hole grounded outlet.
5. Open gas supply valve slowly.
6. Rotate on/off switch to the "ON" (I) position. Set thermostat to desired temperature. Thermostat setting may be too low if heater does not start. Select a higher temperature and start heater.

NOTE: If the heater does not ignite, turn on/off switch to "OFF" (O) position. Wait for the safety control to reset (usually about 10 seconds), and try again.

NOTE: If this does not work, the high temperature switch may have opened while the thermostat was shutting down. Wait 10 to 15 minutes for the switch to reset, then attempt to light heater. Continued outages indicate a system problem, have unit serviced by a professional.

TO START HEATER

1. Follow all safety, installation and ventilation instructions in this manual.
2. Position the heater on a stable and level surface, and be sure that no drafts blow into the inlet or outlet of the heater.
3. Plug the power cord of the heater into a three hole grounded extension cord. Be sure that the extension cord is at least 6 feet long, and is UL listed.

EXTENSION CORD WIRE SIZE REQUIREMENTS

- Up to 50 feet long, use 18 AWG rated cord.
- 51 to 100 feet long, use 16 AWG rated cord.
- 101 to 200 feet long, use 14 AWG rated cord.

1. Shut off the gas supply by closing the valve tightly.
2. After a few seconds, the heater will burn off the gas that was left in the supply line.
3. Turn on/off switch to the "OFF" (O) position.
4. Disconnect heater from power supply.

Maintenance

WARNING Do not attempt to service the heater while it is hot, operating or plugged in. Severe burns or electrical shock can occur.

1. Be sure to inspect the heater before each use. Check for leaks using the method described in Installation

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section. Repair any leaks immediately.

Maintenance (Continued)

2. Always keep heater clean. Clean the heater annually, or as often as needed to remove any dust or debris. When the heater becomes dirty, wipe it down with a damp cloth.
3. Keep the inside of the heater free from foreign objects and combustibles.
4. Have the heater inspected annually by a qualified service person.

SERVICE PROCEDURES

WARNING *Never service heater while hot, operating or connected to the gas supply. Severe burns or electrical shock may occur.*

REMOVING PROTECTIVE COVER

1. Remove base lower at the bottom of the heater.

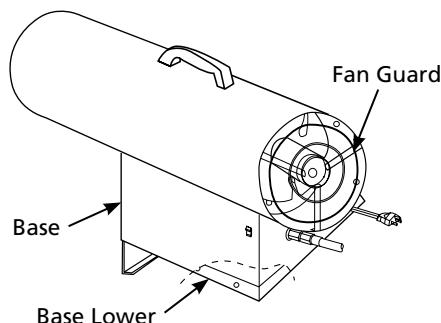


Figure 4 – Protective Cover Removal

2. Remove fan guard.

FAN

IMPORTANT: Always remove the fan from the motor shaft before removing the motor assembly from the heater. This will help prevent damage to the fan.

1. Remove base lower.
2. Remove fan guard.
3. Remove base.
4. Disconnect lead wires attached to the motor.
5. Remove motor assembly.
6. Loosen fan setscrew using a 1/8" hex wrench, and remove fan.
7. Using a soft cloth moistened with kerosene or a cleaning solvent, carefully clean the fan blades making sure not to bend them.
8. Dry fan with clean cloth.
9. Assemble fan on motor shaft and tighten hex nuts firmly (be careful not to overtighten).
10. Reconnect lead wires as shown in the Wiring Diagram (Figure 6).
11. Reassemble base, fan guard and base lower.

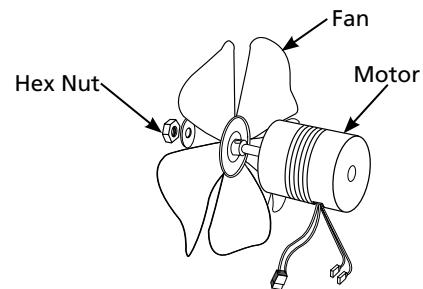


Figure 5 – Fan Motor Shaft, Hex Nut Location

IGNITOR

The only maintenance necessary for the ignitor is to be sure that the gap between the electrodes is kept between .10" and .15". The ignitor is accessible through the combustion chamber.

Storage

CAUTION *Always disconnect heater from gas supply.*

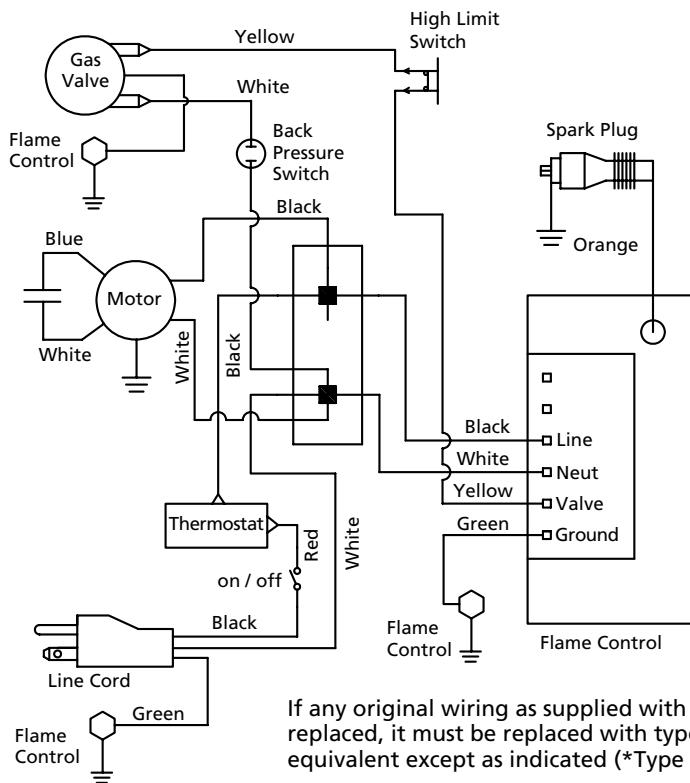
1. Replace the plastic caps over the fittings they were installed when you originally unpacked your heater.
2. Store the heater in a safe, clean and dry location.
3. When removing the heater from storage, always check inside of the heater for any foreign objects left by spiders or small animals. Keep the inside of the heater clean from foreign objects and combustibles.

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Wiring Diagrams



If any original wiring as supplied with the heater must be replaced, it must be replaced with type AWG105°C wire or its equivalent except as indicated (*Type SF2-200, **SGI-250°C)

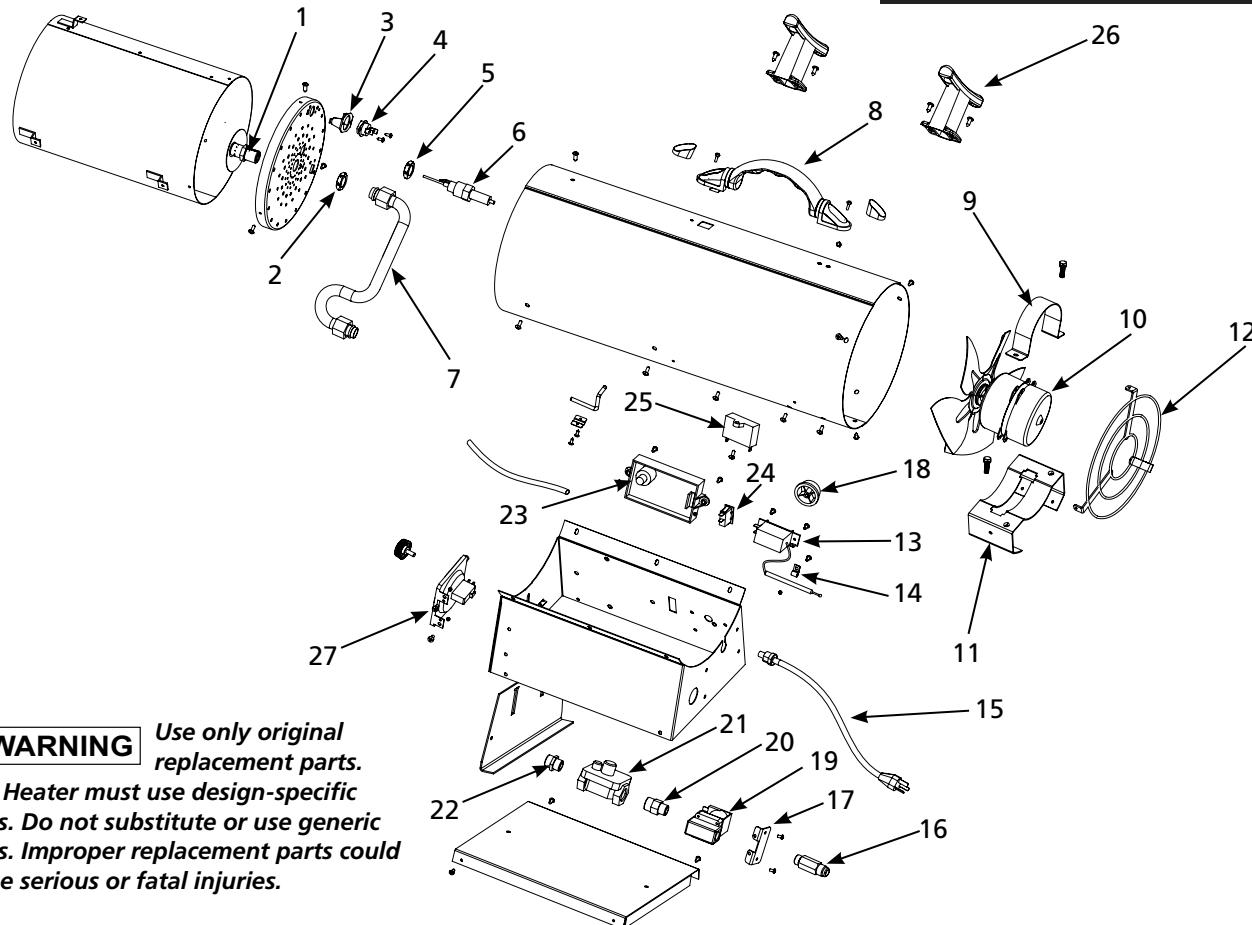
Figure 6 – Wiring Diagram

For Repair Parts, call 1-877-447-4768

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

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WARNING Use only original replacement parts.

This Heater must use design-specific parts. Do not substitute or use generic parts. Improper replacement parts could cause serious or fatal injuries.

Figure 7 – Repair Parts Illustration for Natural Gas Construction Heater

Repair Parts List for Natural Gas Construction Heater

Ref. No.	Description	Part No.	Qty.	Ref. No.	Description	Part No.	Qty.
1	Nozzle Assembly	2315481	1	15	Power Cord Assembly	2201163	1
2	Nozzle Nut	2304945	1	16	Connector Inlet	2315478	1
3	Thermal Switch Bracket	2304826	1	17	Solenoid Valve Bracket	2301968	1
4	Thermal Switch	2201373	1	18	Knob	2101207	1
5	Spark Plug Nut	2305686	1	19	Solenoid Valve	2304277	1
6	Spark Plug	2301974	1	20	Fitting	2315479	1
7	Tubing Assembly	2315483	1	21	Regulator	2315556	1
8	Handle Assembly	2101447	1	22	Fitting	2315480	1
9	Motor Support	2304823	1	23	PCB Assembly	2201181	1
10	Motor Assembly	2315447	1	24	Switch	2201549	1
11	Motor Bracket	2304938	1	25	Capacitor	2201390	1
12	Fan Guard	2304939	1	26	Cord Wrap	2101423	2
13	Thermostat Assembly	2201186	1	27	Back Pressure Switch		
14	Clip	2301973	1				

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Troubleshooting Chart

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Symptom	Possible Cause(s)	Corrective Action
Fan does not turn when electrical connection is made	1. No electric power to heater 2. Fan blade contacts inside of heater housing 3. Fan blade(s) bent 4. Fan motor defective	1. Check current to electric outlet. If voltage is correct, check power cord and extension cord for cuts and breaks 2. Be sure that housing is not damaged. Make sure there are no obstructions to the fan 3. Straighten blade(s) to match others 4. Replace motor
Heater will not fire	1. No spark at igniter 2. Improper spark gap 3. Bad electrode	1. Check igniter wire. Reattach or tighten if loose. Check spark module. Replace if necessary. Check all electrical components 2. Set gap to 0.12" 3. Replace spark plug
Heater quits while running	1. Internal temperature too high causing limit switch to shut down operation 2. Damaged control valve 3. Dust or debris build-up inside of heater	1. If the heaters output is restricted, internal temperature becomes too high. Move heater away from any obstructions 2. Replace control valve 3. Clean inside of heater

Always be sure to follow proper maintenance procedures, by cleaning the heater once per month during regular usage, and check spark gap at least once per season.

LIMITED WARRANTY:

This limited warranty is extended to the original retail purchaser of this Forced Air/Convection/Radiant Heater and warrants against any defect in materials and workmanship for a period of one (1) year from the date of retail sale. GHP Group, Inc., at its option, will either provide replacement parts or replace or repair the unit, when properly returned to the retailer where purchased or one of our service centers as directed by GHP Group, Inc., within one (1) year of retail purchase. (Shipping costs, labour costs, etc. are the responsibility of the purchaser.)

DUTIES OF THE OWNER:

This heating appliance must be operated in accordance with the written instructions furnished with this heater. This warranty shall not excuse the owner from properly maintaining this heater in accordance with the written instructions furnished with this heater. A bill of sale, canceled check or payment record must be kept to verify purchase date and establish warranty period. Original carton should be kept in case of warranty return of unit.

WHAT IS NOT COVERED:

1. Damage resulting from use of improper fuel.
2. Damage caused by misuse or use contrary to the owners manual and safety guidelines.
3. Damage caused by a lack of normal maintenance.
4. Fuses
5. Use of non-standard parts or accessories.
6. Damage caused in transit. Freight charges on warranty parts or heaters to and from the factory shall be the responsibility of the owner.

This warranty does not imply or assume any responsibility for consequential damages that may result from the use, misuse, or the lack of routine maintenance of this heating appliance. A cleaning fee and the cost of parts may be charged for appliance failures resulting from lack of maintenance. This warranty does not cover claims which do not involve defective workmanship or materials. **FAILURE TO PERFORM GENERAL MAINTENANCE (INCLUDING CLEANING) WILL VOID THIS WARRANTY.**

THIS LIMITED WARRANTY IS GIVEN TO THE PURCHASER IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE REMEDY PROVIDED IN THIS WARRANTY IS EXCLUSIVE AND IS GRANTED IN LIEU OF ALL OTHER REMEDIES. IN NO EVENT WILL GHP GROUP, INC. BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you.

CLAIMS HANDLED AS FOLLOWS:

1. Contact your retailer and explain the problem.
2. If the retailer is unable to resolve the problem, contact our Customer Service Dept. detailing the heater model, the problem, and proof of date of purchase.
3. A representative will contact you. DO NOT RETURN THE HEATER TO GHP GROUP, INC. unless instructed by our Representative. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

TO REGISTER THE WARRANTY ON YOUR HEATER, PLEASE FILL OUT THIS CARD COMPLETELY
AND MAIL WITHIN 14 DAYS FROM DATE OF PURCHASE OR REGISTER ON-LINE AT www.ghpgroupinc.com

NAME: _____ PHONE: () _____ EMAIL: _____
 ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____
 MODEL: _____ SERIAL #: _____ DATE PURCHASED: _____
 DEALER PURCHASED FROM: _____ TYPE OF STORE: _____
 CITY & STATE WHERE PURCHASED: _____ PRICE PAID: _____

Please Take a Minute To Give Us Your Answers To The Following Questions.**All Responses Are Used Solely For Market Research And Are Held In Strict Confidence.**

Who primarily decided this purchase? Male Female 18-24 25-39 40-59 60 and over

Purpose of Purchase? _____

Do you own any other portable heaters? Yes No If yes, type _____ brand _____

How do you intend to use your new heater? Construction Site Farm Warehouse/Commercial Garage/Outbuilding Other

How did you become aware of this heater? In-Store Display Newspaper Ad Magazine Ad Friend/Relative

TV Commercial Store Salesperson Other _____

What made you select this heater? Style Size/Portability Price Package Brand Other _____

Do you: own rent Would you recommend this heater to a friend? Yes No

Please give us your comments: _____

THANK YOU FOR COMPLETING THIS FORM!

Information will be held confidential.

WARRANTY REGISTRATION

IMPORTANT: We urge you to fill out your warranty registration card within fourteen (14) days of date of purchase. You can also register your warranty on the internet at www.ghpgroupinc.com. Complete the entire serial number. Retain this portion of the card for your records.



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